

## CENTRAL INTELLIGENCE AGENCY

## INFORMATION REPORT

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COUNTRY **East Germany** REPORT

SUBJECT **Railroad-Car Convertible Axle  
Assembly for Standard and Broad Gauge** DATE DISTR. 19 July 1955

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1. During July 1955, the East German authorities propose to test in Dresden a new type of convertible axle assembly for standard and broad gauge.<sup>1</sup> It has been constructed from a design patented by two East German engineers, Grewesmuehl and Schulz.
2. The assembly will be fitted to a four-axled freight car which will be able to run on both standard-gauge (1,500 mm.), and on Russian broad-gauge (1,580 mm.), tracks.
3. The essentials of the system are as follows:
  - a. A fixed axle is mounted in such a way that one end of it extends through the axle box and on this end is a toothed wheel.
  - b. The wheels are mounted on roller bearings on sleeves fixed to this axle; the sleeves off-set so that the distance between the wheels at their closest point corresponds to standard gauge, and at their remotest point to broad gauge.
  - c. Between the wheels, and attached to them by a form of universal joint, is a hollow axle, free to revolve on a second set of roller bearings on the fixed axle.
  - d. When changing gauge, the toothed wheel (see 3.a. above), is engaged by a fixed pawl mounted beside the track, which turns the toothed wheel through 180° thereby rotating the fixed axle and, with it, the off-set sleeves (see 3.b. above), so that the relative positions of the closest and remotest points of the wheels are reversed.
  - e. As, for both gauges, the wheels are set obliquely to the track, a normally shaped wheel is not suitable. Accordingly, a special form of wheel has been developed which, as nearly as possible, meets the requirements for both gauges for negotiating a curve (Sinuslauf).

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25 YEAR RE-REVIEW

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4. Convertible-gauge axle assemblies were built over ten years ago in large numbers in a form similar to the one described above, but with the difference that the wheels ran independently of each other. Under working conditions these assemblies proved generally satisfactory, but because the wheels were not fixed together, wear on the flanges was disproportionately high.
5. The designers of the present system have overcome this difficulty by locking the wheels together by means of a hollow axle so that they have to turn uniformly and retain the necessary resiliency for negotiating a curve (die noetige Rueckstellkraft fuer den Sinuslauf).
6. The axle assembly as it has now been developed has the following characteristics:
  - a. It is simple in construction and not prone to break down under working conditions.
  - b. No additional strain is caused to the bearings and axles by changing gauge.
  - c. Brake shoes do not have to be readjusted for a change of gauge. As the brake shoes are located level with the center of the axle they will connect with the wheels in both positions.<sup>2</sup>
7. Four of the dual-gauge assemblies (i.e. of the kind mentioned in paragraph 4 above) will be fitted with hollow-axle shafts and will also be tested during 1955. A four-axled covered freight car will be used for the tests.
1.   Comment: Representatives of the Chinese People's Republic are expected to attend these tests.

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